



PATENT
Attorney Docket No. 08343.0020-01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Ronald D. McCallister et al.

Application No.: 10/718,505

Filed: November 19, 2003

For: Constrained-Envelope Transmitter
and Method Therefor

)
) Group Art Unit: 2637
)
) Examiner: Jean B. Corrielus
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) Confirmation No.: 1245
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)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

DECLARATION UNDER 37 C.F.R. § 1.132

I, Neil Birch, do hereby make the following declaration:

1. I have been retained by the Intersil Corporation, assignee of the above-captioned reissue patent application.
2. I am an expert in communication systems, including OFDM radio transmission systems. My qualifications are listed below starting at paragraph 15.
3. This declaration contains my opinions with respect to the article entitled "Reducing the Peak-to-Average Power Ratio in OFDM Radio Transmission Systems," by Thomas May and Herman Rohling, published by the IEEE in 1998 ("May").
4. I have read and understand the *May* article.
5. I have also read the Inventor's Submission under 37 C.F.R. § 1.56, signed July 5, 2005, by Ronald D. McCallister ("Inventor's Submission").

6. The Inventor's Submission states the following on page 1 (underlining removed):

Since the pulse-shape extends in both directions in time from the point at which its peak occurs, the teaching clearly requires that the input signal is delayed by at least half of the pulse-shape duration. In view of the foregoing, it is clear that May's approach inherently uses a delay; in my opinion it cannot be done any other way.

7. *May* does not disclose how to delay "the input signal," as described in the Inventor's Submission.

8. *May* also does not disclose how to delay "the input signal . . . by at least half of the pulse-shape duration," as described in the Inventor's Submission.

9. The Inventor's Submission states the following on page 2: "May clearly teaches that the scaled bandlimited pulse-shape must be time aligned so that the pulse peak and the signal peak are time-coincident . . ."

10. *May* does not disclose how to time-align the scaled bandlimited pulse-shape "so that the pulse peak and the signal peak are time-coincident," as described in the Inventor's Submission.

11. The delay in *May* to make "the pulse peak and the signal peak . . . time-coincident" would be a variable delay.

12. The delay in *May* to delay "the input signal . . . by at least half of the pulse-shape duration" would be a variable delay.

13. It is my opinion that one of ordinary skill in the art would not be able to devise a variable delay circuit to make "the pulse peak and the signal peak . . . time-coincident" in *May* without undue experimentation.

14. It is my opinion that one of ordinary skill in the art would not be able to delay "the input signal . . . by at least half of the pulse-shape duration" under the variable signal conditions of *May* without undue experimentation.

QUALIFICATIONS

15. I currently serve as an advisor to the Intelligence Community on matters of communications security and exploitation.

16. I am the Chief Technical Officer and for Earth Communications Ltd.

17. I was formerly the president of Birch Associates Inc., a Washington based consulting firm that dealt in Command Control, Communications, and Intelligence matters.

18. I graduated with a Bachelor of Science degree in Electrical Engineering from North Carolina State University in 1958. After working for Western Electric for a short period of time, I was assigned to the National Security Agency as an engineering officer in the U.S. Air Force. During this period of time, I worked on advanced High Frequency (HF) intercept equipment, microwave amplifiers, and receivers, and interpretation of new and unusual signals. Also, during this period of time, I obtained a Master of Science degree in Electrical Engineering from Catholic University and began work on my doctoral degree. I taught a microwave measurements laboratory and a course in electromagnetism to undergraduate students at Catholic University. I also continued research in voice processing and in the effects of time perturbations on voice quality and intelligibility.

19. I received my Doctorate in Electrical Engineering from Catholic University during the fall of 1965 with formal graduation in the spring of 1966. Meanwhile, I

continued teaching at Catholic University, developing a course in analog and digital communications, which I taught at the graduate level.

20. While at the National Security Agency, I was promoted to branch chief responsible for spread spectrum communications and conventional military tactical communications, where I helped develop and tested the first transmitted reference spread spectrum communication system over satellite. I was also responsible for commissioning and overseeing the first definitive widely distributed document on spread spectrum communications entitled "Spread Spectrum Communications.". I was also in charge of the National Security Agency branch that developed the first digital spread spectrum "rake" receiver for a "tropo-scatter channels."

21. I was also responsible for the establishment of certain U.S. and Allied communications standards which ensure radio interoperability among military allies with near optimum radio performance. I also performed fundamental research into the performance of electronic timing circuits in digital, secure radio equipment.

22. After my promotion to division chief at the National Security Agency, I left government service in 1967 to join Magnavox Co. While at Magnavox, I created and managed Magnavox Advanced Systems Analysis Office, a Washington-based research facility that worked for National Aeronautics and Space Administration ("NASA"), the Department of Defense, and the Advanced Research Project Agency.

23. I designed the first NASA tracking and data relay satellite transponder (TDRS), which was a spread spectrum modem. I also evaluated the space-earth-space multipath channel for tracking and data relay satellite and the effects on spread spectrum signals.

24. I also led new business activities in the areas of spread spectrum communications, satellite transponder designs, voice coding and intelligibility testing, time varying multi-path communications channel modeling, and communications packages for environmental sensor systems. Based on the design work I led in these areas, NASA later developed transponders for operational NASA satellites. In addition to these activities, I continued to teach a communications course at Catholic University and developed a course in space communications, which I taught internationally.

25. In 1973, I returned to government service as Chief Scientist for the U.S. Navy for Telecommunications Command and Control Systems. My duties within the U.S. Navy included advising the Chief of Naval Operations on all U.S. Navy related spread spectrum developments and coordinating research and development programs on telecommunications within the U.S. Navy and with other military services. These programs involved U.S. Navy and joint satellite programs, submarine communications, and task force communications.

26. In 1975, I accepted the position of Chief Scientist with the Office of the Secretary of Defense for Telecommunications, Command and Control Systems, and subsequently became the Deputy Assistant Secretary of Defense for Communications, Command and Control of Intelligence programs for the U.S. Military Services. I was responsible for all U.S. Department of Defense spread spectrum and conventional communication developments for the U.S. Military Services and provided technical guidance on all electronic U.S. Department of Defense activities that supported strategic, theater, and tactical forces. I was instrumental in bringing to fruition a number of electronic systems that were subsequently used by U.S. forces in "Desert Storm."

27. In 1975, I helped establish the Joint Tactical Information Distribution System (JTIDS) program between the U.S. Air Force and U.S. Navy, a major wireless joint service communications system.

28. In 1979, I left the Pentagon to form Birch Associates Inc., a Washington based consulting firm dealing in Command Control, Communications, and Intelligence matters. The company assisted U.S. and foreign corporations and governmental operations in activities relating to electronic communications, security, and surveillance. I served on a number of U.S. Government defense oriented committees and participated as a member of the board of directors for three high technology firms.

29. I was an active member of the Armed Forces Communication Electronic Association for which I have developed a number of continuing engineering education courses. I have assisted the Catholic University of America over the past several years by conducting seminars, consulting on its electrical engineering curriculum, obtaining summer jobs for engineering students, and by recommending ways to equalize enrollment in engineering in Catholic University.

30. In addition to receiving two distinguished civilian service awards while in the U.S. Government, I was elected Fellow of the Institute of Electronic and Electrical Engineers in 1986 for my contributions to U.S. military communications and Life Fellow in 2002.

31. I have served on Department of Defense panels dealing with the MILSTAR satellite spread spectrum waveforms and the spread spectrum waveforms associated with Ballistic Missile Defense (BMD) communications. I have also

participated in the evolution of the U.S. Navy's Data Distribution System, which is a spread spectrum communication system for missile defense.

32. I have been an expert witness in several patent infringement cases involving communications technologies, some of which involved advanced digital wireless technologies. I am a co-inventor and patent holder for a technique to counter cellular telephone fraud.

33. I developed and taught a number of courses in communications and telecommunications, which I have presented in the U.S. and abroad over the past twenty-five years. These include, "Advanced Communications," "High Frequency Radio," "Spread Spectrum Communications," "Military Command, Control, Communications and Intelligence," "Space Communications," "Integrated Services Digital Networks," "Data Links," and "Voice Coding."

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated:

5/17/06

By:

Neil Birch
Neil Birch

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